Basic Configuration Package

Scanner Basic Configuration for RIEGL VZ-1000

Part-No. HW-VZ1000-01-000-00

3D Laser Scanner RIEGL VZ-1000

(Part-No. HW-VZ1000-00-000-00)

- laser transmitter & receiver front end
- motorized mirror scanning mechanism
- signal processing electronics with echo digitization and online waveform analysis
- Human-Machine Interface (HMI) with high-resolution
- 3,5`` TFT color display (320 x 240 pixels) and keypad
- 32 GByte flash memory for data storage, internal
- GPS receiver (L1), integrated (with antenna)
- inclination sensors (2 axes), integrated
- laser plummet, integrated
- digital compass, integrated
- internal power supply electronics, input voltage 11 - 32 V DC

Detailed specifications and laser classification according to the latest datasheet *RIEGL* VZ-1000.

Electrical Interfaces, integrated

- LAN interface 10/100/1000 MBit/s within rotating head
- LAN interface 10/100 MBit/s within base
- integrated WLAN interface with two different lenghts of rod antennas
- USB 2.0 for external storage devices (USB flash drives, external HDD) and for connecting the optional digital camera
- connector for GPS antenna
- two connectors for external power supply
- connector for serial interface and external GPS synchronization pulse (1PPS)

Mechanical Interfaces, inegrated

- W5/8`` standard tripod mounting thread
- high precision mounting pads for camera mount on top
- 3x M6 mounting threads, depth 8mm at bottom

Cables

- TCP/IP cable M12-M12, 3 m
  (Part-No. HW-GP-03-000-00)

Information contained herein is believed to be accurate and reliable. However, no responsibility is assumed by *RIEGL* for its use.
Technical content subject to change.

- TCP/IP cable M12-RJ45, 0.3 m
  (Part-No. HW-GP-03-002-00)
- TCP/IP cable M12-RJ45 cross over, 0.3 m
  (Part-No. HW-GP-03-003-00)
- Serial data and PPS cable to GPS receiver, 3 m
  (Part-No. HW-VZXX-03-000-00)
- Power supply cable, 2 pole / 7 pole, 3 m
  (Part-No. HW-VXX-03-011-00)
- Adapter cable, 1 m, from power supply cable to banana plugs
  (Part-No. HW-GP-03-004-00)
- Adapter cable, 1 m, from power supply cable to cigarette lighter plug
  (Part-No. HW-GP-03-005-00)
- Debug-cable, 2m, only for service purposes
  (Part-No. HW-VXX-03-002-00)

RiSCAN PRO Viewer, Acquisition & Processing Software

(Part-No. SW-GP-07-000-00)
For detailed description of main functions see RiSCAN PRO datasheet.

- The companion software package to the *RIEGL* Terrestrial Laser Scanner series
- Using a well-documented tree structure for comfortable access and clarity
- Project oriented, XML file format
- For operating systems WINDOWS XP (recommended), WINDOWS 2000 SP2 or above
  includes:
    - RiSCAN PRO Viewer License for visualizing of already acquired RiSCAN PRO projects and simple data evaluation
    - RiSCAN PRO Acquisition License for *RIEGL* scanner configuration and data acquisition, global scan data registration, viewing and export of merged, filtered point clouds
    - RiSCAN PRO Processing Single User License (Dongle) for advanced data processing and evaluation of already acquired RiSCAN PRO projects

RiSCAN PRO Standard Software Maintenance for 12 months

(Part-No. ST-GP-06-000-00)

- Free software updates
- E-mail and telephone support

User Manual (in English language)

"Technical Documentation & Operating Instructions"
including, among other things, instructions for: Safety, Installation, Operation, etc.

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RIEGL Software Packages / Modules

RiSCAN PRO Processing Network Server License

Part-No. SW-GP-02-003-00

Includes 10 licenses for RiSCAN PRO Processing, administrated by a network server program.
Licenses can be allocated to single processing computers in the same network. Checking out single licenses to USB dongles is possible. 2 dongles added to scope of delivery.
Single User License mandatory.

License RiSCAN PRO / RiPROFILE Plugin Camera Module

Part-No. SW-GP-02-000-00

Enables automatic acquisition of calibrated and orientated images via USB or IEEE 1394 "firewire".

License RiSCAN PRO Plugin Multi Station Adjustment Module

Part-No. SW-GP-02-001-00

- Advanced registration based on overlapping point clouds
- Advanced registration and adjustment based on tie points, control points
- Advanced registration and adjustment based on additional plane information

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Technical content subject to change.

RIEGL Firmware Option(s)

SCAN SYNC Scanner Rotation Synchronization for V-Line Laser Scanners

Part-No. FW-VXX-02-000-00

for synchronizing scan lines to external timing signal

- Synchronization of the data acquisition of a single laser scanner or several laser scanners to an external event pulse, typically the PPS-signal of a GPS receiver, whereas this event pulse can be fed to other units of a data acquisition system for synchronized operation (e.g. a camera is triggered with start of a scan line).
- Increasing the data acquisition speed by operating several laser scanners, as in some data acquisition systems the acquisition speed of a single laser scanner may be not sufficient. Operating several laser scanners scanning the same angular range requires the scanners to be synchronized to achieve a well-defined scan pattern and to avoid interference between the scanners.

Please note:
For upgrading of already delivered instruments please provide the instrument´s serial number to allow checking of feasibility and estimating of costs.

VZ-xx Standalone - Reflector Search, Fine-Scanning and Registration

Part-No. FW-VZXX-02-000-00

Applicable for standalone operation with the *RIEGL* VZ-xx scanner, without the need of a PC running RiSCAN PRO, by means of the scanner`s integrated Human Machine Interface, HMI (LCD screen and key pad). Identifies all available reflector targets and ignores incorrect ones due to user defined rules and intelligent processing. Automatic fine-scanning of valid reflectors for obtaining accurate reflector position as a basis for global registration.

Please note:
For firmware upgrade please provide the instrument`s serial number to allow checking of feasibility and estimating of costs.

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Technical content subject to change.

Recommended Accessories

AC Power Supply Unit for VZ-xx

Part-No. HW-VZXX-04-000-00

for *RIEGL* VZ-xx, 100 - 240 V AC, 50 - 60 Hz

- for direct operation of the scanner from main power supply and simultaneously charging of a mounted add-on rechargeable battery or
- for direct charging of an unmounted add-on rechargeable battery

Add-on Rechargeable Battery

Part-No. HW-VZXX-04-001-00

Optional add-on rechargeable battery pack (high power high capacity NiMH cells), compact slim disc design, short-circuit-proof and protected connection pins, rechargeable during standard scan operation via external power supply, integrated micro-controller based charging electronics, easily pluggable to base of the laser scanner by central locking screw, DC voltage source (11-32 V DC) sufficient for recharging, 2.13 kg weight, 60.5 mm height, 21.6 V, 4.5 Ah.
Operating time @ typical operating conditions:
VZ-400: approx. 2 h @ 20°C ambient temperature
VZ-1000: approx. 1 h 20 min @ 20°C ambient temperature

Note:
This rechargeable battery (NiMH) is considered to be a "dry cell" battery and is unregulated for transportation by the International Civil Aviation Organization (ICAO), International Air Transport Association (IATA), the International Maritime Organization (IMO) and the US Department of Transportation (DOT).

Rechargeable NiMH Battery for External Power Supply

Part-No. HW-GP-04-000-00

13.2 V, 18 Ah, with fuse, weight 3.55 kg

Automatic Charger for External NiMH Battery

Part-No. HW-GP-04-001-00

100 - 240 V AC, short circuit proof, weight 0.4 kg

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Technical content subject to change.

Adapter Cable, 1 m, from 7 pole power supply cable to 12 V PbGel battery

Part-No. HW-GP-03-006-00

with "quick action" battery pole connectors

Adapter Cable, 1 m, from 7 pole power supply cable to 12 V PbGel battery, crocodile

Part-No. HW-GP-03-007-00

with "crocodile" battery pole connectors

Scanner Carrying Case "SMALL" for VZ-xx

Part-No. HW-VZXX-05-000-00

with 4 hinged handgrips and wheels, splash-proof, foam lined to fit shape of *RIEGL* VZ-xx and cables. Dimensions: 560 x 455 x 265 mm.

Scanner Carrying Case "LARGE" for VZ-400

Part-No. HW-VZ400-05-000-00

with 4 hinged handgrips and wheels, splash-proof, foam lined to fit shape of *RIEGL* VZ-400, scanner mount for manual tilt and cables. Dimensions: 628 x 497 x 303 mm.

Camera Carrying Case (SMALL), VZ-xx

Part-No. HW-VZXX-05-001-00

Splash-proof, foam-lined to fit shape of camera NIKON D300(s) or NIKON D700, up to 2 lenses (one of the lenses mounted on camera), camera mount with mounted GPS antenna, and camera accessories.
Dimensions: 406 x 330 x 174 mm

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Technical content subject to change.

Camera Carrying Case (LARGE), VZ-xx

Part-No. HW-VZXX-05-002-00

Splash-proof, foam-lined to fit shape of camera NIKON D300(s) or NIKON D700, up to 6 lenses (one of the lenses mounted on camera), camera mount with mounted CPS antenna, and camera accessories.
Dimensions: 525 x 428 x 206 mm

High Precision Camera Mount for NIKON D300(s) for VZ-xx

Part-No. HW-VZXX-06-000-00

Detachable, for high precision mounting of the camera, with connector for GPS antenna, power supplied via scanner, direct USB2 connection via spring contacts, and Compact Flash Card (SanDisk extreme IV, necessary for operation of the camera with the *RIEGL* VZ-xx)

High Precision Camera Mount for NIKON D700 for VZ-xx

Part-No. HW-VZXX-06-001-00

Detachable, for high precision mounting of the camera, with connector for GPS antenna, power supplied via scanner, direct USB2 connection via spring contacts, and Compact Flash Card (SanDisk extreme IV, necessary for operation of the camera with the *RIEGL* VZ-xx)

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Technical content subject to change.

Lens Adapter & Protection Tube for NIKON Lens AF D 14/2.8 NIKKOR for use with VZ-XX Camera Mount

Part-No. HW-CAM-10-024-00

Lens Adapter & Protection Tube for NIKON Lens AF D 20/2.8 NIKKOR for use with VZ-xx Camera Mount

Part-No. HW-CAM-10-028-00

Lens Adapter & Protection Tube for NIKON Lens AF 50/1.8 NIKKOR for use with VZ-xx Camera Mount

Part-No. HW-CAM-10-023-00

Lens Adapter & Protection Tube for NIKON Lens AF D 85/1.8 NIKKOR for use with VZ-xx Camera Mount

Part-No. HW-CAM-10-032-00

GPS Mounting Adapters

Part-No. HW-VZXX-06-008-00

Set of 2 adapters for mounting an customer-specific, differential GPS antenna, with 5/8`` screw connector.
1 adapter for use with camera mounted, 1 adapter for use without camera mounted.

Stable, Professional Tripod

Part-No. HW-GP-06-000-00

Adapter Plate for Tripod Mounting

Part-No. HW-VZXX-06-009-00

Tripod Star for Smooth Surfaces

Part-No. HW-GP-06-001-00

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Technical content subject to change.

Adjustable Tribrach, ready for laser plummet

Part-No. HW-VZXX-06-010-00

Adjustable tribrach, ready for laser plummet, extra stable quality, with bubble level, for mounting the *RIEGL* scanner on a tripod.
Note: *RIEGL* scanner mounted on a tribrach to be used only in vertical position!
Due to reduced stability, usage of a tribrach may reduce measurement result quality.

Adapter for Tribrach, ready for laser plummet

Part-No. HW-GP-06-013-00

Shock-Absorbing Mount, SPM-Vxx

Part-No. HW-VZXX-06-011-00

Made of stainless steel mounting plates and optimized shock-absorbing elements, prepared for being combined with a special adapter plate for mounting of an IMU sensor.

Adapter Plate for IMU for SPM-Vxx

Part-No. HW-VZXX-06-012-00

for mounting of the customer-specific IMU sensor to the shock-absorbing mount SPM-Vxx.
Dimensional drawings of IMU sensor are requested for checking of feasibilty.

Scanner Mount for Manual Tilt for VZ-xx

Part-No. HW-VZXX-06-006-00

damped tilting mechanism, adjustable in steps of 15° up to 90°

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Technical content subject to change.

Additional Services

Two-Day training

Part-No. ST-GP-11-000-00

Regarding the Hardware as well as the operating software RiSCAN PRO. The training will be held either at our site in Horn, Austria, or at your site (travelling and accommodation expenses to be added).

Intensified Additional Training

Part-No. ST-GP-11-001-00

Covers advanced working with the scanner hardware as well as processing of the acquired data with RiSCAN PRO;
Price per 8 hours working day (travelling expenses to be added)

Digital Camera Calibration Service for up to three camera lenses

Part-No. ST-GP-11-002-00

Provides complete set of camera calibration parameters for use in RiSCAN PRO including internal calibration, lens distortion parameters and mounting calibration parameters. Parameters are delivered within a RiSCAN PRO project. Calibration statistics included (available for camera-lens combinations as recommended by *RIEGL* LMS).

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Technical content subject to change.